

METHOD AND APPARATUS FOR WORD SYNCHRONIZATION WITH LARGE CODING DISTANCE AND FAULT TOLERANCE FOR PRML SYSTEMS

Abstract of the Disclosure

- 5 A method and apparatus are provided for word synchronization with large coding distance and fault tolerance for a partial-response maximum-likelihood (PRML) data channel in a direct access storage device (DASD). A Viterbi detector receives equalized PR4 samples including a predefined word synchronization pattern. The Viterbi detector is a dedicated detector
- 10 optimized for detecting the predefined word synchronization pattern. The Viterbi detector includes a two-state Viterbi trellis and a word synchronization detector for the two-state Viterbi trellis. The predefined word synchronization pattern includes only even length magnets. The predefined word synchronization pattern is a repetition code including pairs of ones and pairs
- 15 of zeros and includes multiple pattern match sequences. The Viterbi detector is optimized with branches removed from the Viterbi trellis, thus increasing coding distance. The two-state Viterbi trellis and word synchronization detector of the Viterbi detector operate on a 2T basis, where 1/T is the sample rate.